



How does lead affect my health?

Lead absorbed by the lungs and the digestive tract from all sources enters the bloodstream, where it distributes to all tissues of the body. Excessive levels of lead can damage the brain, kidneys, nervous system, red blood cells and reproductive system. The degree of harm is directly related to the level of lead in the blood (from all sources). Known effects of exposure to lead range from subtle changes in body chemistry and nervous system functions at low levels of exposure, to severe toxic effects or even death at very high levels associated with acute poisoning. Some harmful effects are reversible if exposure is reduced, while other harmful effects can be permanent.

Young children, infants and fetuses appear to be particularly vulnerable to harmful effects of lead. A dose of lead that would have little effect on an adult can have a big effect on a small child. Also, growing children will more rapidly absorb any lead they consume. A child’s mental and physical development can be irreversibly stunted by over-exposure to lead. In infants, whose diet consists of liquids made with water — such as baby formula — lead in drinking water makes up an even greater proportion of total lead exposure (40 to 60%).

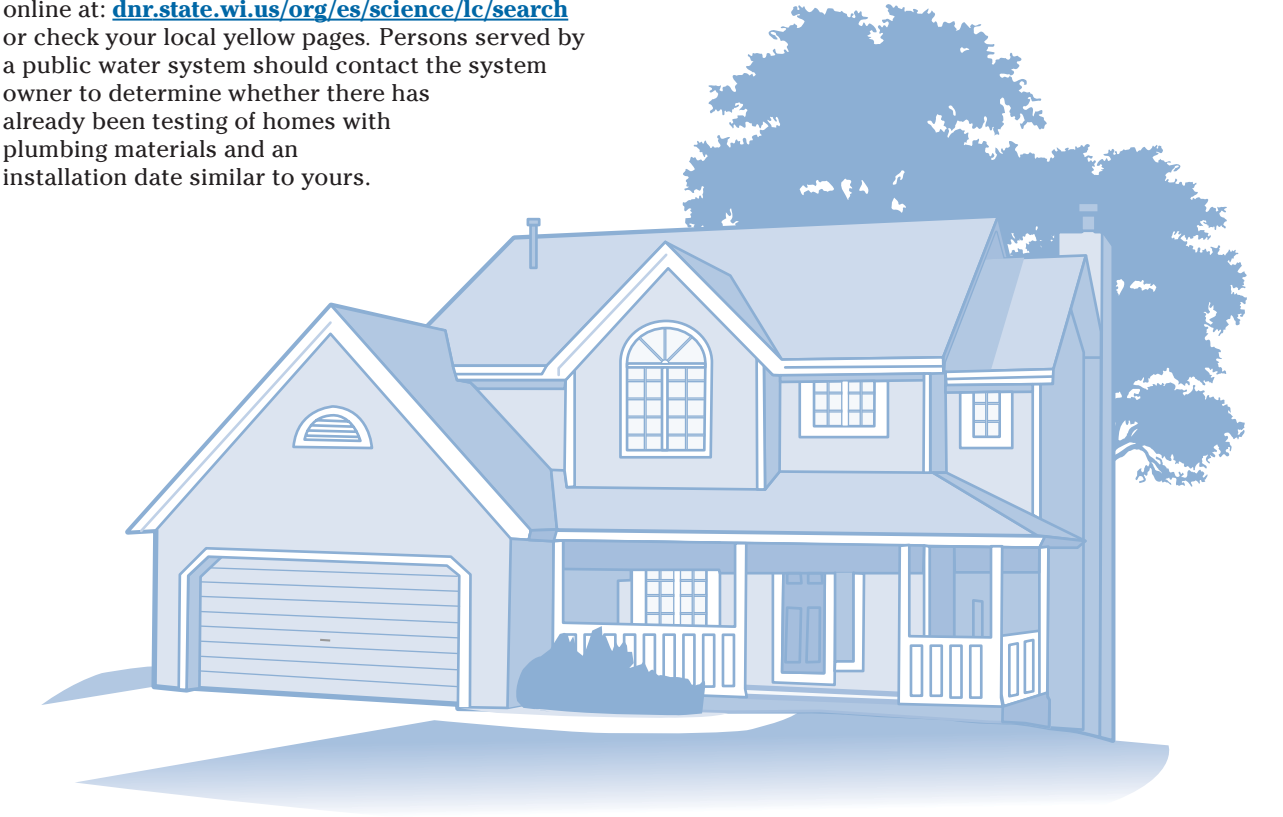
How can I find out if my water is safe to drink?



There are certain obvious advantages to having your water tested for lead, including knowing exactly how high your lead levels rise after periods of nonuse. Even if you live in an older home with no lead piping

and are in a hard water area, a lead test can confirm that there is little or no lead in your “first-draw” sample. If testing shows lead in your first drawn water, a lead test before and after flushing can confirm if your flushing procedure is working.

If you decide to have your water tested, it is recommended that you use a state **certified** laboratory which can detect lead in drinking water at 5 parts per billion or less. There are a number of laboratories statewide that can provide drinking water sampling materials and instruction. A list of certified labs is available from your drinking water & groundwater specialist at your DNR regional office or online at: [dnr.state.wi.us/org/es/science/lc/search](http://dnr.state.wi.us/org/es/science/lc/search) or check your local yellow pages. Persons served by a public water system should contact the system owner to determine whether there has already been testing of homes with plumbing materials and an installation date similar to yours.



A new house

If your house was constructed after September 26, 1984, state law requires that the soldered joints be “lead-free.” To check on this, try to scratch the outside of the solder at a pipe joint with a key or screwdriver. If the solder is dull in appearance, scratches easily, and is shiny underneath, it may be illegally-installed 50/50 lead/tin solder. Tin/antimony (95/5) solder, the typical replacement for lead solder, remains bright in appearance, and there is often a slight gap or indentation in the solder where the pipe and fitting meet. Lead solder usually bridges this gap completely.

Private Wells

In addition to plumbing corrosion concerns, there are several other potential sources of lead in private wells. If your well draws water from a sand and/or gravel formation, you should know that some well screens contain lead, and many have been installed with a “lead packing collar.” If such a device is contributing lead to your water, flushing will probably take longer. It is recommended that you have your water tested for lead.

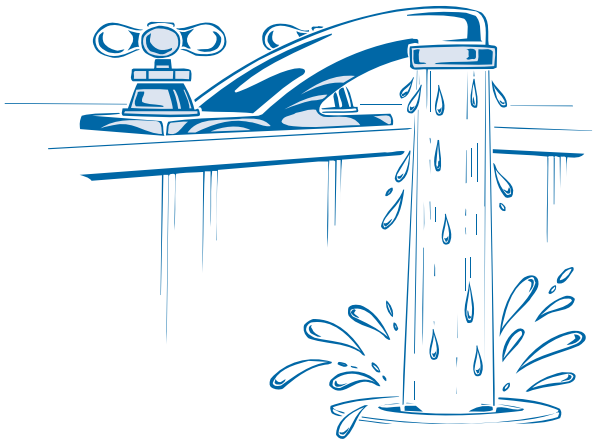
If you own a “driven-point” well, and if you have ever “shot” the well to clear the screen, you have another potential source of lead in your water. Some individuals have actually poured lead shot into a well to keep out sand. Lead wool has also been placed in some wells. (None of these practices has ever been recommended.) In any of these cases, it is recommended that you have your water tested for lead.

If you live in a former lead-zinc mining region of extreme southwest Wisconsin or if you live near existing or former cherry orchards in Door County, you may have lead in your **groundwater**. It is recommended that you have your water tested for lead.

If you have lead in your groundwater, flushing will not be effective. Point-of-use treatment devices, such as reverse osmosis and distillation units can be effective in removing lead. However, they can be expensive, their effectiveness varies, and they must be properly maintained. All makes and models of treatment devices must be approved by the Wisconsin Department of Commerce. Department of Natural Resources approval may be required, under certain conditions, for the installation of a point of use treatment device. Contact the Bureau of Drinking Water and Groundwater at (608) 266-0821 or one of the DNR offices listed at the end of this brochure for additional information.

If a treatment device is installed, set up an effective and practical maintenance and monitoring program to be sure the system is maintained as recommended by the manufacturer. This is the best way to be certain that it is doing the job intended.

Bring in water from a known safe supply.



How can I reduce my exposure to lead in drinking water?

If your house was constructed before October, 1984, the easiest and most effective method of reducing lead in drinking water is not to drink water that has been in contact with your house plumbing for more than 6 hours, such as overnight or during your work day. Before using water for drinking or cooking, flush the cold water faucet by allowing the water to run until the water has become as cold as it will get (usually 2-3 minutes).

You must do this for each drinking water faucet — taking a shower will not flush your kitchen tap. Shower, toilet, or cold water laundry use will, however, partially flush the plumbing, and will often reduce the time needed to flush drinking water faucets. Buildings constructed prior to the 1940s may have service lines made of lead. Letting the water run for an extra 15 seconds after it cools should also flush this service line.

Studies by the DNR have shown that such flushing can reduce lead levels from hundreds of parts per billion to less than 3 parts per billion (the current detection limit at the State Laboratory of Hygiene). Water flushed from the taps — usually one to two gallons — can be collected and used for nonconsumptive purposes such as washing; it needn’t be wasted. (NOTE: The flushing procedures outlined above will usually be inadequate in large buildings such as apartment complexes.)

Another recommendation for reducing lead exposure is to **never cook with or drink water from the hot-water tap**. Hot water dissolves lead more quickly than cold water. So, do not use water taken from the hot tap for cooking or drinking and **especially not for making baby formula**.

Must every plumbing system be flushed in the morning? Not in all cases. Compliance samples collected show that, in areas with high water hardness, little or no detectable lead was found in homes which met **all** of the following conditions:

- Very hard, alkaline water (generally total hardness greater than 300 parts per million, reported “as calcium carbonate”),
- Water supply plumbing system more than five years old
- No lead piping
- No lead service line connecting to street water main

The individuals in these homes do not need to flush their house plumbing if water is used daily and many others with a similar situation will probably find few problems. You can contact your water utility or supplier for information on the level of water hardness in your area, as well as other information available on first-draw lead levels in the area.

A word of caution: with the limited data available, it is not possible to **guarantee** that all homes with the above characteristics will have little or no detectable “first-draw” lead levels. If you do not have your water tested, flushing is a simple precaution.

